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INTRODUCTION Most of the Maricao quadrangle is underlain by deep residual soil on which are grown coffee, plantains, citrus fruits, and related crops. An exception is the southwestern part of the quad-

rangle, underlain by serpentinite, where thin soil and bare rock are common. Several good paved highways and an intricate network of jeep roads provide access to within about a kilometre of most points in the quadrangle; after heavy rains, however, the jeep roads are passable only with difficulty. Much of the serpentinite area lacks roads or trails. Subdued topography developed on the Río Blanco Formation in the northwestern part of the quadrangle appears to be a southward extension of the pre-middle Oligocene erosion surface that is a prominent element of the landscape toward the north and

Cerro Goden fault, may mark the boundary of this surface in the Maricao quadrangle. New evidence has indicated a need for revision of the Río Blanco Formation-Concepción Formation contact from the version shown at the south border of the San Sebastián quadrangle by Tobisch and Turner (1971). In the Maricao quadrangle the two formations are separated by a fault that crosses the border with the San Sebastián quadrangle at a point west of that indicated by Tobisch and Turner (1971). A few minor faults along the north border of the Maricao quadrangle also do not appear on the San Sebastián quadrangle. Special acknowledgement is due E. A. Pessagno, Jr., University of Texas at Dallas, for determination of planktonic Foraminifera, to K. N. Sachs, Jr., U.S. Geological Survey, for identifi-

cation of larger Foraminifera, and to N. F. Sohl, U.S. Geological Survey, for his work and helpful comment on the rudists. Table 1 shows ages for the formations in the Maricao quadrangle based on these fossil identifications.

STRUCTURE

The structure in the Maricao quadrangle is part of a regional

The northernmost fold, a southeast-plunging anticline greatly

Of the three major faults in the quadrangle, one, the fault

Post-middle Eocene fault movement in part contemporaneous

The Cerro Goden fault is a major strand of the great south-

One additional important group of faults trends northwest-

The youngest major fault movement in the quadrangle has

INTRUSIVE AND HYDROTHERMAL ACTIVITY

early middle Eocene (Mal Paso Formation, Tmp); those em-

formations. The hydrothermally altered zones in the same area,

member of the Milagros Formation (middle Eocene). The in-

Felsic intrusive activity south of the Cerro Goden fault most

probably is Eocene. The following lines of evidence support the

Campanian-Maestrichtian-pre-middle Eocene age:

of intrusion and faulting would be suggested.

strichtian that already had been complexly faulted.

2. The intrusions in Barrio Indiera Alta were guided by faults

identical in pattern to those 3 km farther north that offset

3. Quartz-sericite and quartz-kaolinite alteration in the pluton

at Pico Montoso is localized along faults of Eocene age that

from a still-cooling part of the pluton, near-contemporaneity

Metamorphism in the quadrangle is of two contrasting types-

the contact metamorphic aureole surrounding the Pico Montoso

pluton and the pervasive, irregularly distributed low-grade meta-

Metamorphic grade in the aureole surrounding the intrusion

ite enidote and actinolite or enidote quartz calcite and chlo-

morphism that affects most of the Cretaceous volcanic rocks.

pyroxene overgrowths on clinopyroxene) on Pico Montoso it-

resistant to weathering than their unmetamorphosed counter-

Alta. Pervasive alteration of the well-exposed parts of the pluton

together with its broad aureole, suggests that thermal water circu-

lation was restricted to rocks surrounding the pluton. These con-

trasts probably reflect differing fracture histories; thus, although

Pervasive low-grade metamorphism affects the Cretaceous

offset the pluton. If the alteration were related to fluids

METAMORPHISM

1971, 1973).

Eocene rocks.

The felsic and gabbroic intrusions north of the Cerro Goden

ever, Río Blanco rocks become prehnitized. Adjacent to the Eocene plutons and hydrothermal zones, the assemblage of chlorite, epidote, albite, sphene ± carbonate and (or) quartz is common. These metamorphic relations are interpreted as follows: 1. The contrast in regional metamorphic grade north and south of the Cerro Goden fault indicates that this metamorphism predates movement on the fault.

> rocks north of the Cerro Goden fault may indicate a regional metamorphic gradient related to the felsic intrusive complex and epidotized zone in Río Blanco rocks of the Central La Plata quadrangle (McIntyre, 1971). 3. Alteration halos associated with the Eocene plutons and hytions appear different in origin from the regional background

2. The increase in metamorphic grade toward the northwest in

drothermal zones in the Río Blanco and Concepción Formaand may be somewhat younger. They appear to be weaker, more diffuse, vague counterparts of the Pico Montoso con-

tact aureole.

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